

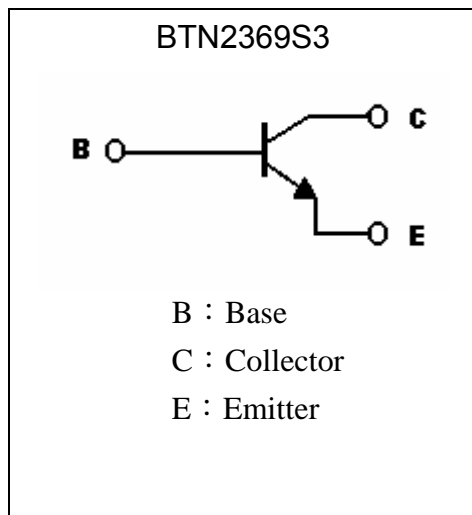
High Frequency NPN Switching Transistor

BTN2369S3

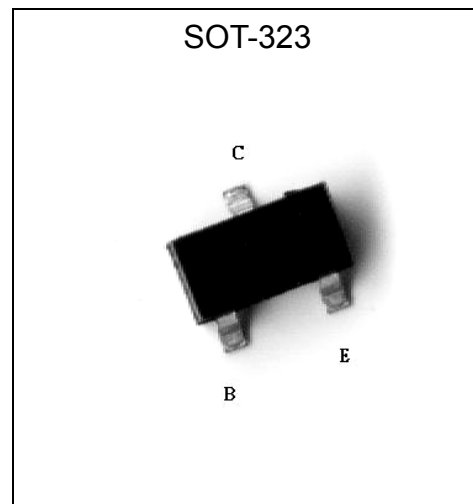
Description

- High transition frequency, $f_T=500\text{MHz}(\text{min})$
- High current, $I_{C(\text{max})}=200\text{mA}$
- Low saturation voltage, $V_{CE(\text{SAT})}=0.3\text{V}(\text{max})$
- Pb-free lead plating package

Symbol



Outline



Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CB0}	40	V
Collector-Emitter Voltage	V_{CE0}	15	V
Emitter-Base Voltage	V_{EB0}	4.5	V
Collector Current (DC)	I_C	200	mA
Power Dissipation	P_d	300	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55~+150	$^\circ\text{C}$

Note: When mounted on FR-4 PCB with area measuring $50 \times 50 \times 1.6$ mm

**Characteristics (Ta=25°C)**

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BVCBO	40	-	-	V	IC=50μA
BVCEO	15	-	-	V	IC=1mA
BVEBO	4.5	-	-	V	IE=50μA
ICBO	-	-	100	nA	VCB=40V
IEBO	-	-	100	nA	VEB=4.5V
*VCE(sat) 1	-	-	250	mV	IC=10mA, IB=1mA
*VCE(sat) 2	-	-	300	mV	IC=20mA, IB=1mA
*VBE(sat) 1	700	-	850	mV	IC=10mA, IB=1mA
*VBE(sat) 2	-	-	1	V	IC=20mA, IB=1mA
*hFE 1	70	-	140	-	VCE=6V, IC=1mA
*hFE 2	70	-	140	-	VCE=1V, IC=10mA
*hFE 3	20	-	-	-	VCE=2V, IC=100mA
fT	500	-	-	MHz	VCE=10V, IC=10mA, f=100MHz
Cob	-	-	4	pF	VCB=5V, f=1MHz

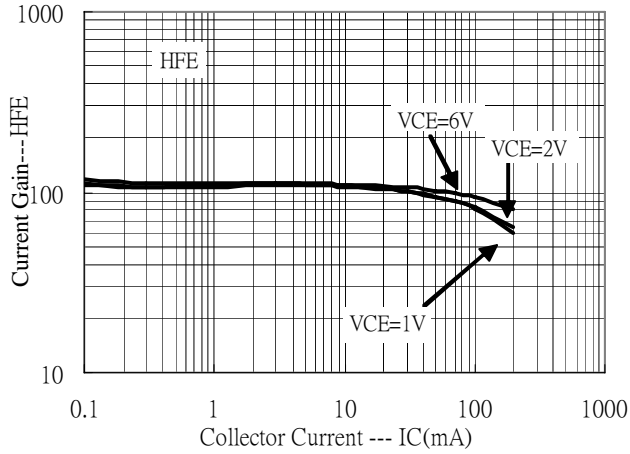
*Pulse Test: Pulse Width ≤380μs, Duty Cycle ≤2%

Ordering Information

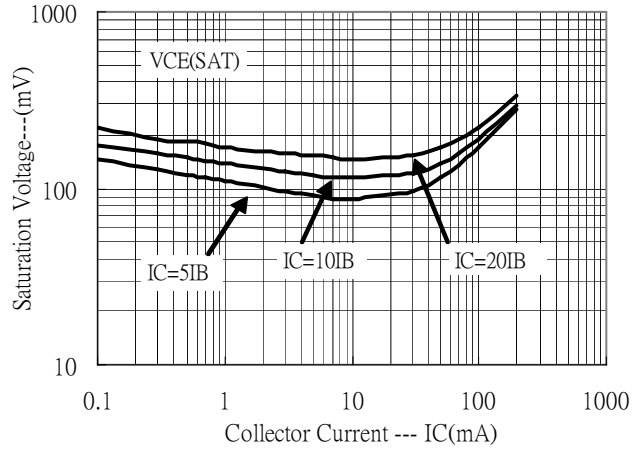
Device	Package	Shipping	Marking
BTN2369S3	SOT-323 (Pb-free lead plating package)	3000 pcs / Tape & Reel	1J

Typical Characteristics

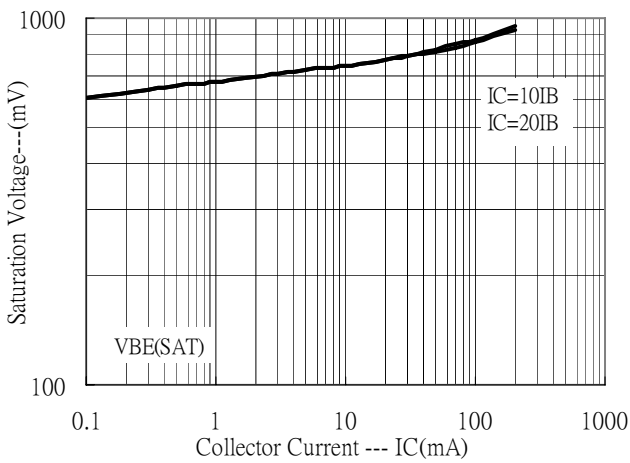
Current Gain vs Collector Current



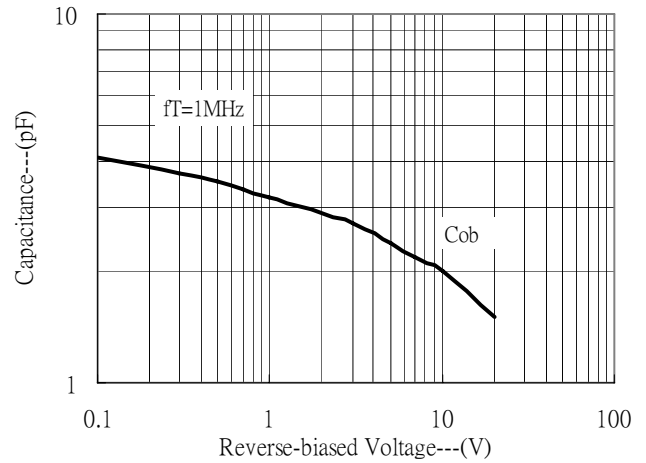
Saturation Voltage vs Collector Current



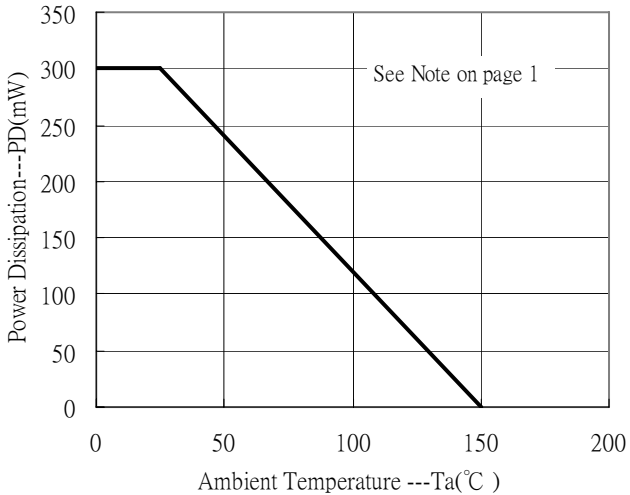
Saturation Voltage vs Collector Current



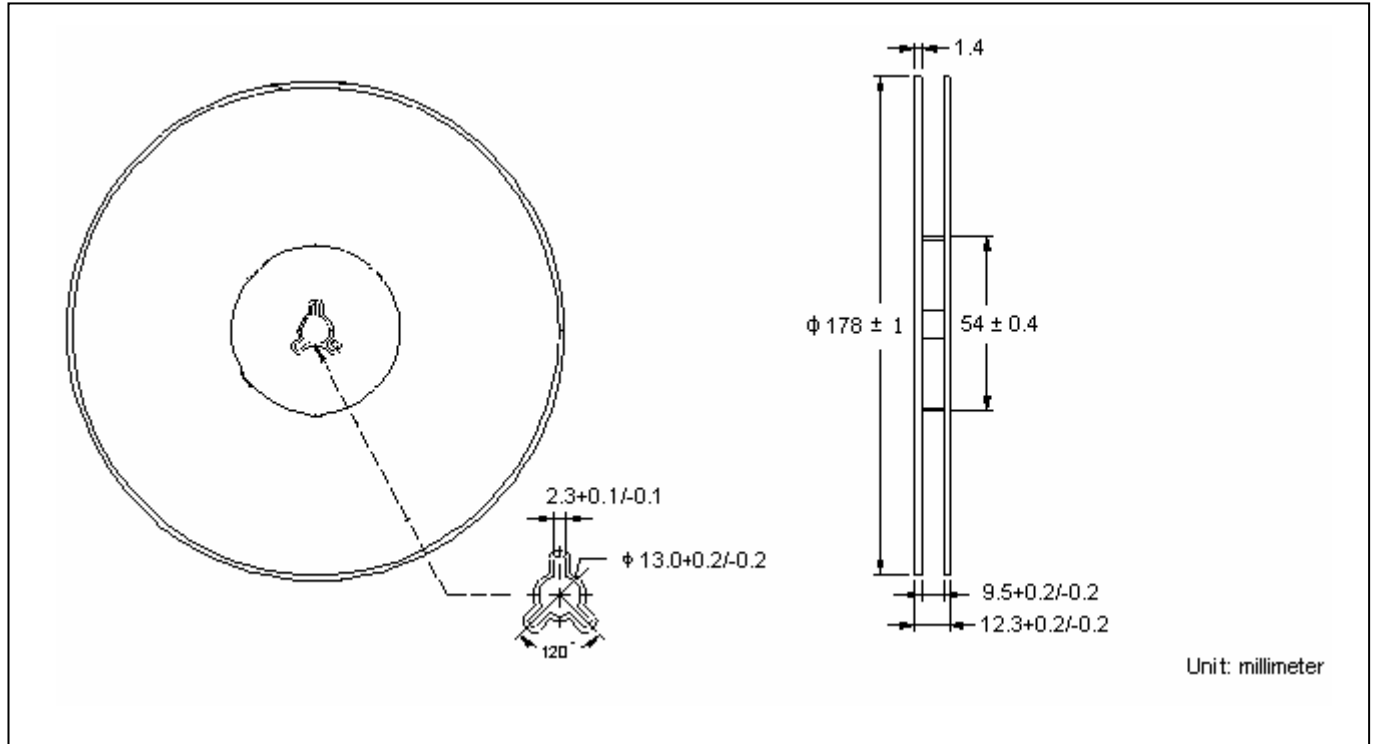
Capacitance Characteristics



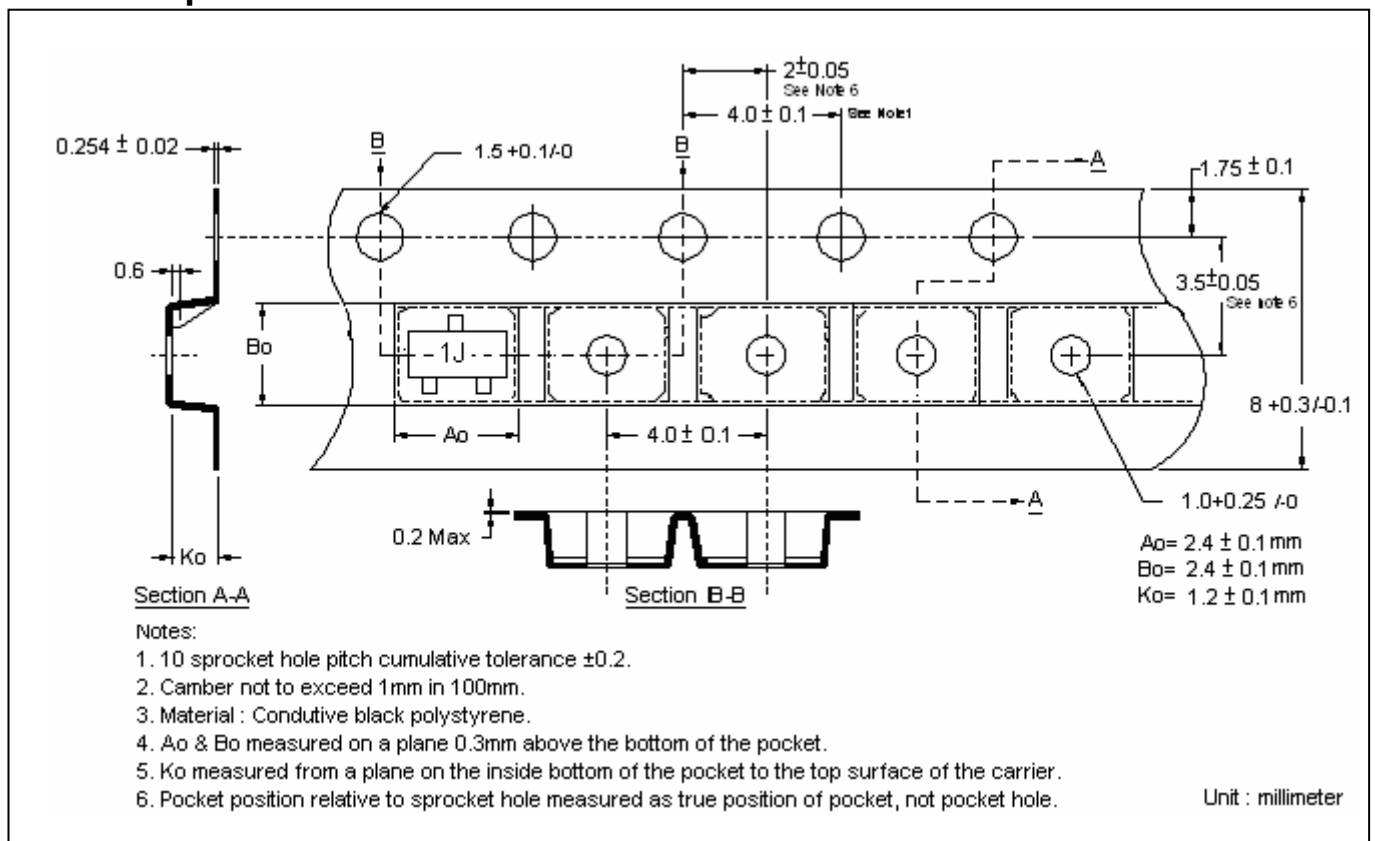
Power Derating Curve



Reel Dimension



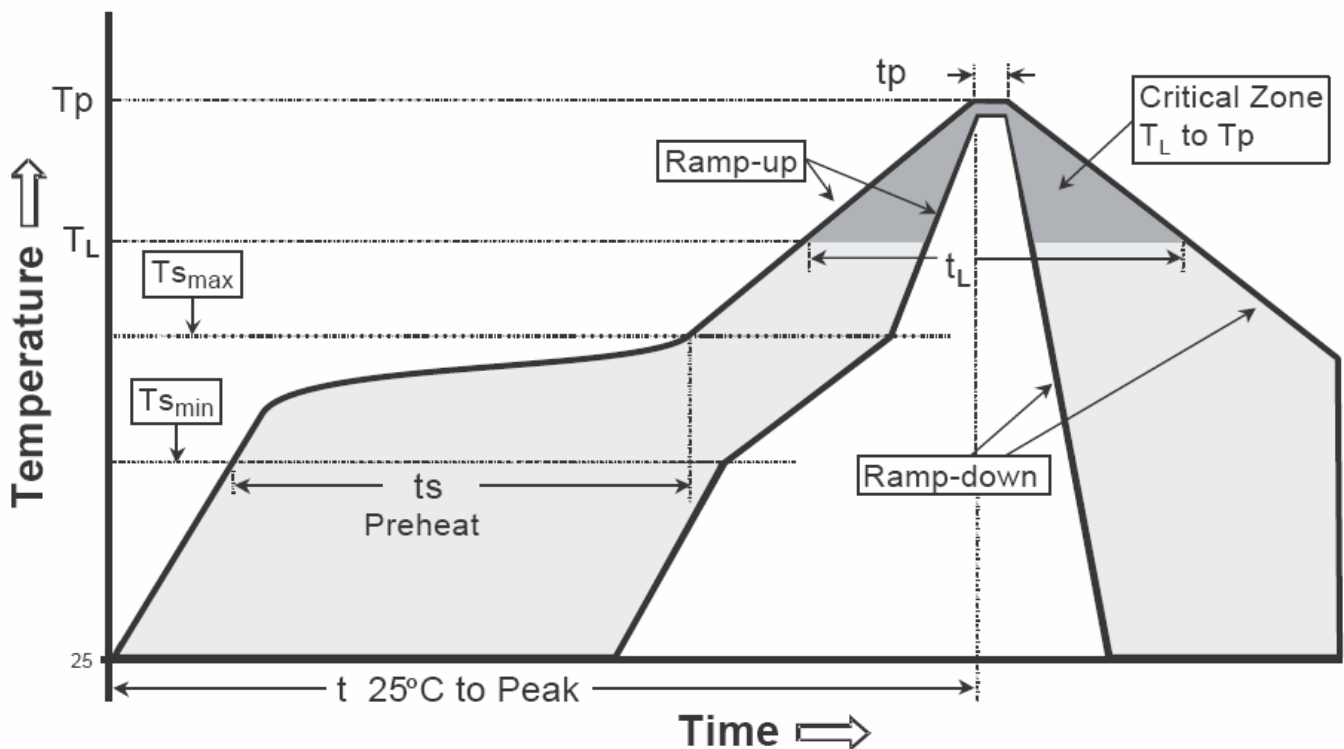
Carrier Tape Dimension



Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

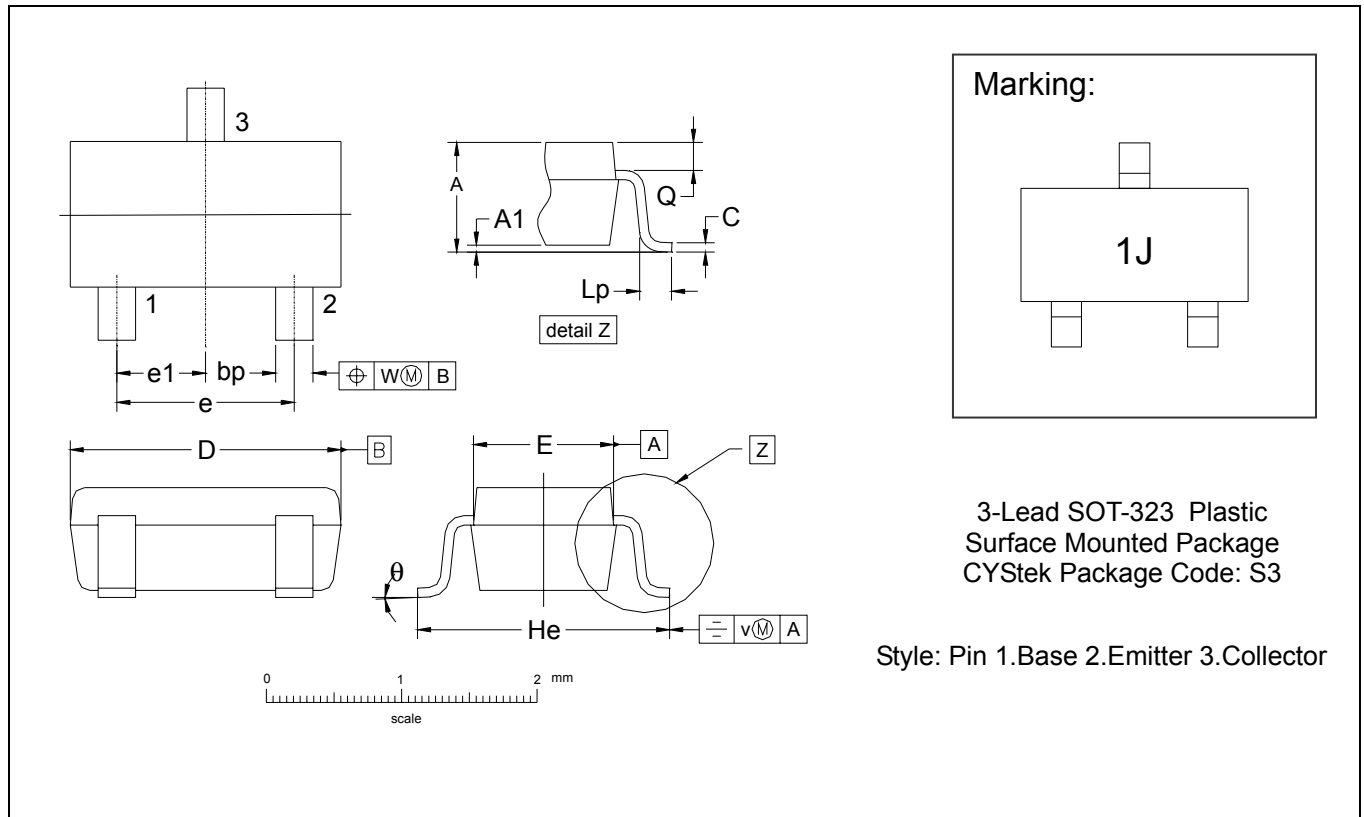
Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T _{smax} to T _p)	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(T _{s min})	100°C	150°C
-Temperature Max(T _{s max})	150°C	200°C
-Time(t _{s min} to t _{s max})	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (T _L)	183°C	217°C
- Time (t _L)	60-150 seconds	60-150 seconds
Peak Temperature(T _P)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

SOT-323 Dimension



*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.0315	0.0433	0.80	1.10	e1	0.0256	-	0.65	-
A1	0.0000	0.0039	0.00	0.10	He	0.0787	0.0886	2.00	2.25
bp	0.0118	0.0157	0.30	0.40	Lp	0.0059	0.0177	0.15	0.45
C	0.0039	0.0098	0.10	0.25	Q	0.0051	0.0091	0.13	0.23
D	0.0709	0.0866	1.80	2.20	v	0.0079	-	0.2	-
E	0.0453	0.0531	1.15	1.35	w	0.0079	-	0.2	-
e	0.0512	-	1.3	-	θ	-	-	10°	0°

Notes: 1.Controlling dimension: millimeters.
 2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
 3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material:

- Lead: Pure tin plated.
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0.

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